

WETLAND DELINEATION REPORT

for

**Annapolis Neck, LLC
City of Annapolis, Maryland**

Prepared for:

**Bay Engineering, Inc.
190 Admiral Cochrane Drive, Suite 175
Annapolis, MD 21401**

Prepared by:



10/9/14

Michael J. Klebasko, P.W.S.

Date



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1. INTRODUCTION

A wetland delineation in accordance with the methodologies outlined in the 1987 *Corps of Engineers Wetlands Delineation Manual*¹ and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region*² was conducted by Michael J. Klebasko and Kenneth R. Wallis of Klebasko Environmental, LLC on August 3, 2012, on September 5, 2012, and on October 5, 2012. The purpose of the delineation was to identify any wetlands, streams, or other jurisdictional areas that would be regulated by the Maryland Department of the Environment and/or the U.S. Army Corps of Engineers. The limits of potential jurisdictional areas within the study area were flagged in the field with orange colored surveyors tape and numbered consecutively. Three (3) data sheets were also completed documenting the presence or absence of wetlands within the study area. The data sheets are included in Appendix A of this report.

2. EXISTING SITE CONDITIONS

The 5.28-acre property is located south of the intersection of Georgetown Road and Bay Ridge Road in the City of Annapolis, Maryland (Figure 1). The study area is bordered to the west by an existing commercial building, to the south by existing single-family homes along Old Annapolis Neck Road, and to the east by the recently constructed Bay Village Drive. The site currently contains several single family homes, mowed lawn, and a small area of mixed-hardwood forest. The Latitude and Longitude of site are N38° 56' 50" and W76° 29' 22", respectively.

3. ENVIRONMENTAL MAPS

Various environmental maps were reviewed prior to conducting the wetland delineation in order to obtain knowledge on potential site conditions and characteristics. This information is useful in accurately delineating the limits of jurisdictional areas in the field.

a. NRCS Soil Surveys

The U.S. Department of Agriculture - Natural Resources Conservation Service (NRCS) has produced soil surveys for every county within the State of Maryland. The soil surveys map the locations of the various soil types throughout each county and provide a description of each

¹ Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Wetlands Research Program Technical Report Y-87-1. Final Report. January.

² U.S. Army Corps of Engineers. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region*. U.S. Army Engineer Research and Development Center. Vicksburg, MS.

soil type. The updated soil survey for Anne Arundel County (Figure 2) that can be accessed online at <http://websoilsurvey.nrcs.usda.gov> revealed that four (4) soil types are mapped on the subject property (as summarized in Table 1). One of the soil types has been classified as partially hydric by NRCS.

b. *National Wetland Inventory Maps*

The National Wetland Inventory (NWI) Maps prepared by the U.S. Department of the Interior - Fish & Wildlife Service used high altitude aerial photography to map the limits of various wetland types³ throughout the United States. The NWI Map for this site (Figure 3) is contained on the Annapolis quadrangle and does not indicate the presence of any mapped wetland classifications on the property.

c. *USGS Topographic Maps*

The U.S. Geological Survey (USGS) Maps depict existing environmental features on sites, including 20-foot topographic lines, forest, structures, and roads, as well as the locations of ponds, intermittent and perennial streams. The USGS Map for this study area (Figure 4) indicates the site is a mixture of open land and forest. However, no intermittent or perennial streams are mapped on the property.

d. *Watershed Classification*

Section 26.08.01.08 of the Code of Maryland Regulations lists the stream segment designation for all the waterways within the state of Maryland, as well as their Use Classifications. Any water leaving this property drains off-site via sheet flow in a southeasterly direction into a recently constructed storm drain inlet adjacent to Bay Village Drive. The water then travels within a storm drain pipe for a distance of approximately 700 feet before emptying into a storm water management pond. Water released through the pond's riser is then conveyed within the storm drain system for an additional 1,000 feet before being ultimately discharged into an unnamed tributary to Lake Ogleton, a Use I Waterway according to CoMar 26.08.02.08.(K).

4. WETLAND DELINEATION PARAMETERS

In order for an area to be classified as a wetland, the following three parameters must exist: (a) a predominance of hydrophytic vegetation; (b) evidence of wetland hydrology; and (c) hydric soils. The data sheets in Appendix A summarize the results of the field investigation.

³ Cowardin, Lewis M., V. Carter, F.C. Golet, and E. T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Fish & Wildlife Service - Biological Services Program. FWS/OBS-79/31.

a. *Hydrophytic Vegetation*

By definition, wetlands support a prevalence of vegetation typically adapted for life in saturated soil conditions under normal circumstances. Hydrophytic vegetation is present when the plant community is dominated by species that can tolerate prolonged inundation or soil saturation during the growing season. The wetland indicator status⁴ of the species that make up the plant community is used to determine whether hydrophytic vegetation is dominant. Plant species that are classified as Obligate (OBL), Facultative-wetland (FACW), or Facultative (FAC) are considered to be hydrophytic, while species classified as Facultative-Upland (FACU) and Upland (UPL) are considered to be non-wetland plants.

b. *Wetland Hydrology*

Wetlands by definition are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The presence of water for an extended period of time at or within 12 inches of the soil surface is the driving force for all wetlands. The *Corps of Engineers Wetlands Delineation Manual* and the *Regional Supplement* list the indicators of wetland hydrology. The indicators are divided into two categories - primary and secondary. One primary indicator is sufficient to conclude that wetland hydrology is present. In the absence of a primary indicator, two or more secondary indicators are required to conclude that wetland hydrology is present.

c. *Hydric Soils*

A hydric soil is defined as a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions, generally within 12 inches of the soil surface. Within the Coastal Plain of Maryland, hydric soil indicators are listed in the *Regional Supplement*. Either a 4-inch diameter bucket auger or a spade shovel were used to collect soil samples.

5. SUMMARY OF FINDINGS

One non-tidal wetland was identified within the study area, as shown on the enclosed 30-scale *Wetland Delineation Plan* prepared by Bay Engineering, Inc. The isolated, man-made, non-tidal wetland pocket was identified in a wooded area near the center of the site. This 6,860-square foot wetland pocket appears to have been created when a driveway was constructed along its eastern edge, thus inhibiting drainage. This condition was exacerbated when the small culvert installed under the driveway became blocked, thus preventing run-off from draining out of the depression. The canopy in the wetland is comprised of red maple (*Acer rubrum*) and sweet gum (*Liquidambar styraciflua*), while the herbaceous layer is dominated by common greenbrier

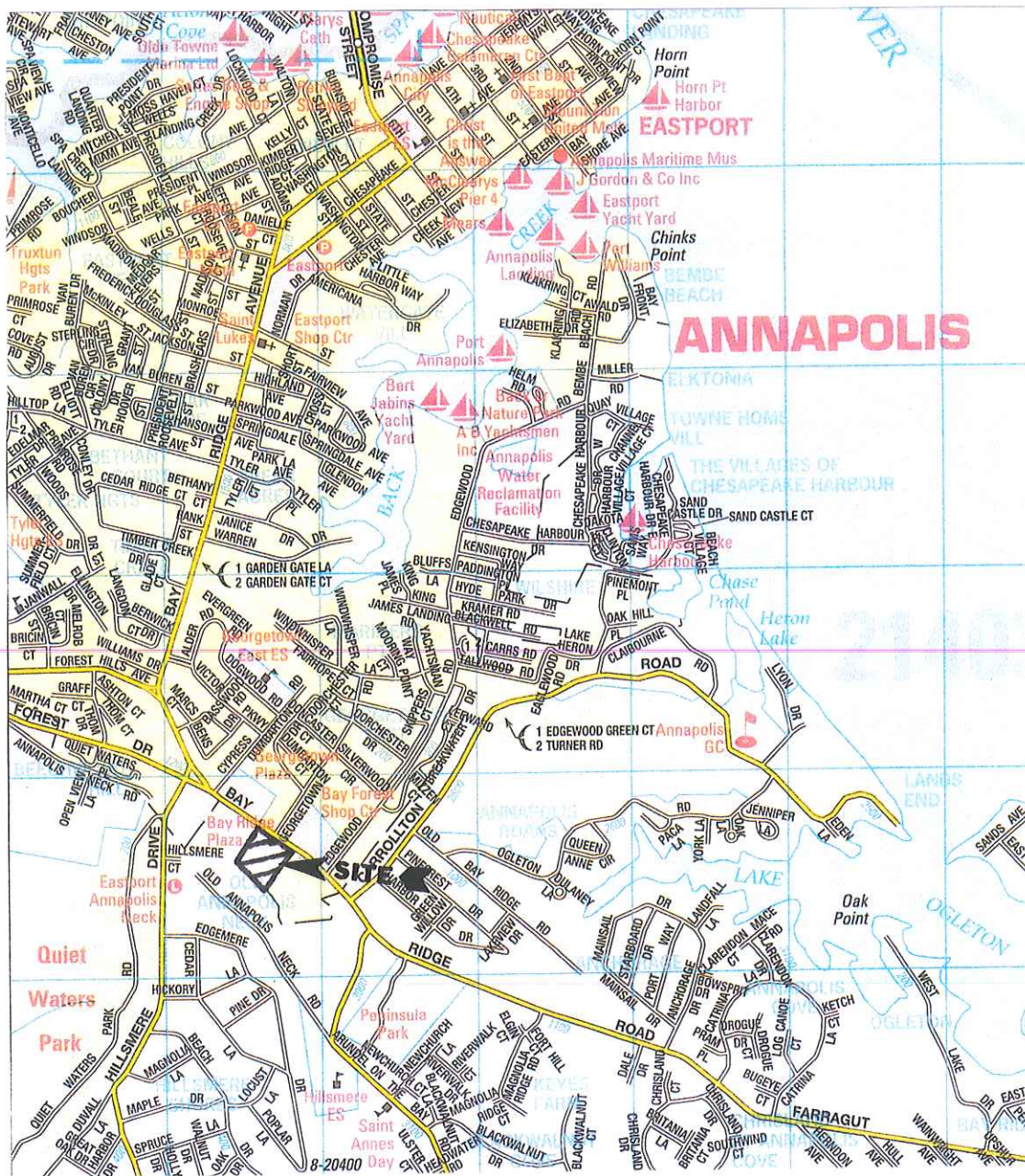
⁴ Reed, P.B., Jr. 1988. *National List of Plant Species that Occur in Wetlands: 1988 National Summary*. Biological Report 88(24), U.S. Fish and Wildlife Service, Washington D.C.

(*Smilax rotundifolia*). Wetland Delineation Data Sheet A (Appendix A) documents the characteristics of this wetland pocket, while Wetland Delineation Data Sheets B and C document the upland conditions to the east and south of the wetland area.

This delineation has been confirmed by Judy Broersma of the Maryland Department of the Environment (MDE). A Letter of Authorization #13-NT-0214/201361023 was subsequently issued by MDE on September 17, 2014 to permanently impact the entire, isolated wetland pocket and its 25-foot buffer.

TABLE 1: MAPPED SOILS TABLE			
<i>Symbol</i>	<i>Map Unit Name</i>	<i>K-Factor</i>	<i>Hydric</i>
AoC	Annapolis loamy sand, 5-10% slopes	0.20	No
AuB	Annapolis-Urban land complex, 0-5% slopes	0.28	No
CkA	Colemantown fine sandy loam, 0-2% slopes	0.28	Partially
Uz	Urban land	0.28	No

Source: <http://websoilsurvey.nrcs.usda.gov> (October 1, 2012)



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FIGURE 1 - Vicinity Map
(Copyright ADC The Map People
Permitted Use #21005228)

Scale: 1" = 2,000'



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FIGURE 2 - Soils Map

Source:
<http://websoilsurvey.nrcs.usda.gov>
(October 2012)

Scale: 1" = 300'

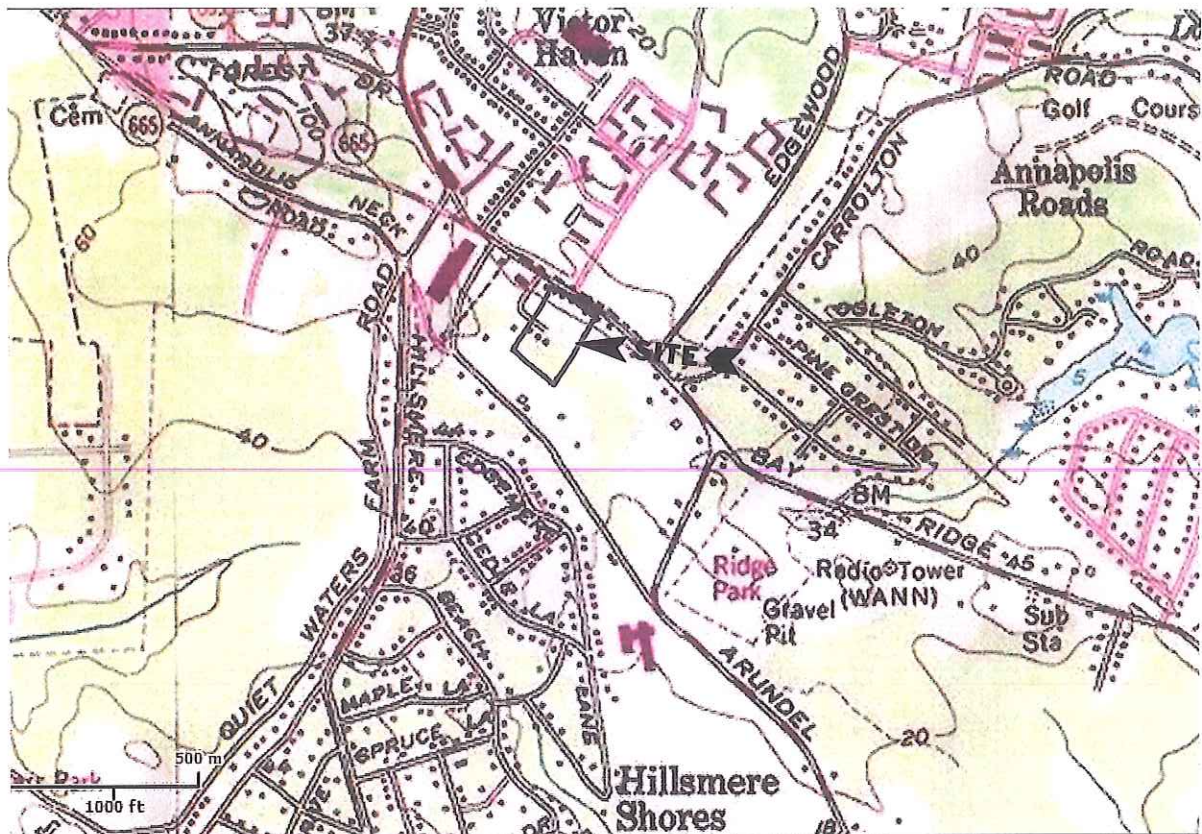


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FIGURE 3 - NWI Map
(Annapolis Quadrangle)

Scale: 1" = 2,000'



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FIGURE 4 - U.S.G.S. Map
(Annapolis Quadrangle)

Scale: N/A

APPENDIX A

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: ANNAPOLIS NECK, LLC City/County: ANNAPOLIS / A.A. Sampling Date: 10/5/12
 Applicant/Owner: _____ State: MD Sampling Point: 1
 Investigator(s): M. KLEBASCO, K. WALLIS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): WOODED DEPRESSION Local relief (concave, convex, none): CONCAVE Slope (%): 42
 Subregion (LRR or MLRA): 149A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: ANNAPOLIS LOAMY SAND (AOC) NWI classification: U
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Shallow Aquitard (D3)
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> FAC-Neutral Test (D5)
		<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
Field Observations:		
Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____	Wetland Hydrology Present? Yes <u>X</u> No _____	
Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____		
Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION (Five Strata) – Use scientific names of plants.

 Sampling Point: 1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>QUERCUS PALUSTRIS</u>	<u>15</u>	<u>N</u>	<u>FW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)
2. <u>ACER RUBRUM</u>	<u>60</u>	<u>Y</u>	<u>F</u>	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. <u>LIQUIDAMBAR STYRACIFLUA</u>	<u>45</u>	<u>Y</u>	<u>F</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. <u>ILEX OPACA</u>	<u>3</u>	<u>N</u>	<u>FU</u>	
5. _____				
6. _____				
<u>123</u> = Total Cover 50% of total cover: <u>61.5</u> 20% of total cover: <u>24.6</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling Stratum (Plot size: _____) 1. <u>ACER NEGUNDO</u> <u>10</u> <u>Y</u> <u>F</u> 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ _____ = Total Cover 50% of total cover: _____ 20% of total cover: _____				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
Shrub Stratum (Plot size: _____) 1. _____ 2. <u>N/A</u> 3. _____ 4. _____ 5. _____ 6. _____ _____ = Total Cover 50% of total cover: _____ 20% of total cover: _____				Definitions of Five Vegetation Strata: Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine – All woody vines, regardless of height.
Herb Stratum (Plot size: _____) 1. <u>SMILAX ROTUNDIFOLIA</u> <u>70</u> <u>Y</u> <u>F</u> 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ _____ = Total Cover 50% of total cover: _____ 20% of total cover: _____				
Woody Vine Stratum (Plot size: _____) 1. <u>SMILAX ROTUNDIFOLIA</u> <u>7</u> <u>Y</u> <u>F</u> 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover 50% of total cover: _____ 20% of total cover: _____				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
Remarks: (If observed, list morphological adaptations below). 				

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR3/1						LOAM	
3-10	2.5Y4/2						LOAM	
10-16	2.5Y5/2		10YR2/4	30			LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U)	<input type="checkbox"/> 1 cm Muck (A9) (LRR O)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U)	<input type="checkbox"/> 2 cm Muck (A10) (LRR S)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O)	<input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Anomalous Bright Loamy Soils (F20)
<input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> (MLRA 153B)
<input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Muck Presence (A8) (LRR U)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> 1 cm Muck (A9) (LRR P, T)	<input type="checkbox"/> Marl (F10) (LRR U)	<input type="checkbox"/> Other (Explain in Remarks)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Ochric (F11) (MLRA 151)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T)	
<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A)	<input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Delta Ochric (F17) (MLRA 151)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A)	
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)	
<input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: ANNAPOLIS NECK, LLC City/County: ANNAPOLIS / AA Sampling Date: 10/5/12
 Applicant/Owner: _____ State: MD Sampling Point: 2
 Investigator(s): M. KLEBANSKY, K. WALLIS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): GENUINE SLOPE Local relief (concave, convex, none): CONCAVE Slope (%): <5
 Subregion (LRR or MLRA): 149A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: ANNAPOLIS LOAMY SAND (AOC) NWI classification: U
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> FAC-Neutral Test (D5)
		<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
Field Observations:		
Surface Water Present? Yes _____ No <u>X</u>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <u>X</u>
Water Table Present? Yes _____ No <u>X</u>	Depth (inches): _____	
Saturation Present? Yes _____ No <u>X</u>	Depth (inches): _____	
(includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: 2

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. <u>NONE</u>			
3. _____			
4. _____			
5. _____			
6. _____			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		

Sapling Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. <u>NONE</u>			
4. _____			
5. _____			
6. _____			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		

Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. <u>NONE</u>			
4. _____			
5. _____			
6. _____			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		

Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>CLOVER</u>	<u>60</u>	<u>Y</u>	<u>FU</u>
2. <u>FESCUE (GRASS)</u>	<u>60</u>	<u>Y</u>	<u>FU</u>
3. <u>RUMEX CRISPUS</u>	<u>5</u>	<u>N</u>	<u>FU</u>
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
	<u>125</u> = Total Cover		
50% of total cover: <u>62.5</u>	20% of total cover: <u>25</u>		

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. <u>NONE</u>			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0¹

___ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 2/2		Loam				Loam	
5-14	10YR 2/2 2.5Y 4/3		10YR 5/1 10YR 4/6	5 5			SANDY CLAY LOAM	(GLAUCONITE) PRESENT

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U)	<input type="checkbox"/> 1 cm Muck (A9) (LRR O)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U)	<input type="checkbox"/> 2 cm Muck (A10) (LRR S)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O)	<input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Anomalous Bright Loamy Soils (F20)
<input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> (MLRA 153B)
<input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Muck Presence (A8) (LRR U)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> 1 cm Muck (A9) (LRR P, T)	<input type="checkbox"/> Marl (F10) (LRR U)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Ochric (F11) (MLRA 151)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T)	
<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A)	<input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Delta Ochric (F17) (MLRA 151)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A)	
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)	
<input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: ANNAPOLIS NECK, LLC City/County: ANNAPOLIS / A.A. Sampling Date: 10/5/12
 Applicant/Owner: _____ State: MD Sampling Point: 3
 Investigator(s): M. KLEBASKO, K. WALLIS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): GENTLE SLOPE Local relief (concave, convex, none): CONCAVE Slope (%): <5
 Subregion (LRR or MLRA): 149 A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: ANNAPOLIS LOAMY SAND (AOC) NWI classification: U
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks:		

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> FAC-Neutral Test (D5)
		<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
Field Observations:		
Surface Water Present?	Yes _____ No <u>X</u> Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <u>X</u>
Water Table Present?	Yes _____ No <u>X</u> Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes _____ No <u>X</u> Depth (inches): _____	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION (Five Strata) – Use scientific names of plants.

 Sampling Point: 3

Tree Stratum (Plot size: _____)				Dominance Test worksheet:	
	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>ACER RUBRUM</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u>	(A)
2. <u>QUERCUS MONTANA</u>	<u>25</u>	<u>Y</u>	<u>UPL</u>	Total Number of Dominant Species Across All Strata: <u>7</u>	(B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>14</u>	(A/B)
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
_____ = Total Cover					
50% of total cover: _____ 20% of total cover: _____					
Sapling Stratum (Plot size: _____)				Prevalence Index worksheet:	
	Absolute % Cover	Dominant Species?	Indicator Status	Total % Cover of:	Multiply by:
1. <u>PRUNUS SEROTINA</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>	OBL species _____	x 1 = _____
2. <u>CALYA TUMENTOSA</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	FACW species _____	x 2 = _____
3. <u>ILEX OPACA</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	FAC species _____	x 3 = _____
4. _____	_____	_____	_____	FACU species _____	x 4 = _____
5. _____	_____	_____	_____	UPL species _____	x 5 = _____
6. _____	_____	_____	_____	Column Totals: _____	(A) _____ (B) _____
_____ = Total Cover				Prevalence Index = B/A = _____	
50% of total cover: <u>25</u> 20% of total cover: <u>10</u>					
Shrub Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators:	
	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>VIBURNUM PRUNIFOLIUM</u>	<u>2</u>	<u>Y</u>	<u>FACU</u>	___ 1 - Rapid Test for Hydrophytic Vegetation	
2. <u>LIGUSTRUM VULGARE</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	___ 2 - Dominance Test is >50%	
3. _____	_____	_____	_____	___ 3 - Prevalence Index is ≤3.0 ¹	
4. _____	_____	_____	_____	___ Problematic Hydrophytic Vegetation ¹ (Explain)	
5. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
6. _____	_____	_____	_____	Definitions of Five Vegetation Strata:	
_____ = Total Cover				Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, <u>and</u> woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine – All woody vines, regardless of height.	
50% of total cover: <u>35</u> 20% of total cover: <u>1.4</u>					
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Present?	
	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____	Yes _____ No <u>X</u>	
2. <u>N/A</u>	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
_____ = Total Cover					
50% of total cover: _____ 20% of total cover: _____					
Woody Vine Stratum (Plot size: _____)					
	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>HEDERA HELIX</u>	<u>90</u>	<u>Y</u>	<u>FACU</u>		
2. <u>PARTHENOCISSUS QUINQUEFOIA</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>		
3. <u>TOXICODENDRON RADICANS</u>	<u>10</u>	<u>N</u>	<u>FAC</u>		
4. <u>LOUCERA JAPONICA</u>	<u>10</u>	<u>N</u>	<u>FACU</u>		
5. _____	_____	_____	_____		
_____ = Total Cover					
50% of total cover: <u>70</u> 20% of total cover: <u>28</u>					
Remarks: (If observed, list morphological adaptations below).					

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR5/2						Loam	
3-5	10YR2.4/3						Loam	
5-8	2.5Y5/3						Loam	
8-13	2.5Y7/3		2.5Y5/3	10			Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U)	<input type="checkbox"/> 1 cm Muck (A9) (LRR O)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U)	<input type="checkbox"/> 2 cm Muck (A10) (LRR S)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O)	<input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Anomalous Bright Loamy Soils (F20)
<input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> (MLRA 153B)
<input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Muck Presence (A8) (LRR U)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> 1 cm Muck (A9) (LRR P, T)	<input type="checkbox"/> Marl (F10) (LRR U)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Ochric (F11) (MLRA 151)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T)	
<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A)	<input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Delta Ochric (F17) (MLRA 151)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A)	
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)	
<input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: